

CHAPTER 1

INTRODUCTION

1.1 Introduction

Basic Automated Guided Vehicle (AGV) technology is not a new technology. Fifty years ago when AGVS were first entered the market and industry were called driverless systems. Going through the years of development, advances in electronics have led to improvement in automated guided vehicles. Nowadays, the technology of AGV is widely used in industrial environment to perform variety of task that involves automation. Mikell P.Groover. (June 2000)

The automatic guided vehicle is highlighted as a flexible transport vehicle for existing lines in variety industrial fields. An automatic guided vehicle (AGV) is a vehicle that is equipped with automatic guidance system either electromagnetic or optically. This vehicle is capable of transportation of material, sorting and material handling work also handling dangerous material. An AGV consists of one or more computer controlled wheel based load carriers (normally battery powered) that runs on the plant floor (or if outdoors on a paved area) without the need for an onboard operator or driver. As it names was automated, this vehicle is programmed to handle operation on its own. Jünemann and Schmidt (2000)

Material handling systems using automated guided vehicles (AGVs) are commonly used in facilities such as manufacturing plants, warehouses, distribution centers and terminals. The automatic guided vehicle is highlighted as a flexible transport vehicle for existing lines in variety industrial fields. An automatic guided vehicle (AGV) is a vehicle that is equipped with automatic guidance system either electromagnetic or optically. G.A. Bekey (1996). This vehicle is capable of transportation of material, sorting and material handling work also handling dangerous material. An AGV consists of one or more computer controlled wheel based load carriers (normally battery powered) that runs on the plant floor (or if outdoors on a paved area) without the need for an onboard operator or driver. As it names was automated, this vehicle is programmed to handle operation on its own. The increasing needs for more efficiency and cost savings production had made this vehicle is a popular substitute for manual labors. Groover(2001).

1.2 Problem Statement

The increasing needs for more efficiency and cost savings production had made this vehicle is a popular substitute for manual labors. Technological developments have given AGVs more flexibility and capability in performing its tasks. These AGVs is widely used for its advantage which is the ability to move from one place to another without proper supervision by human or operators. This advantage can increase the productivity and efficiency in manufacturing process of certain product. Cho,C.G and Tanchocho,J.M.A (1991)

The structure of AGV has to be design properly. This is to ensure that the space are used to the maximum. This is ensuring maximum usability of the vehicle. The material selection of material for structure is also important. Material for base structure of the AGV can give significant impact. The lightest material and strongest material will be chosen as the best material for this AGV. In order to get a better weight to power ratio, the material selection have to make to choose the best material. Instituto Superior Técnico (1995)

The steering system is also one of the considerations; the AGV that will be design must operate successfully. The steering system is considered by location for the used of AGV, path taken by the AGV and capability of the project itself. Graham and McGowan (2004)

1.3 Project Objective

In order to achieve the project, the objective of this project must be stated as a guide for the project. The objective of this project is stated below:

- i) Design the model preparation of the AGV prototype using computer software
- ii) To design mechanical system for an automated guided vehicle.
- iii) To perform analysis based on the design automated guided vehicle using calculation and software

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